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Maintaining an experimentation culture in a telecom organization

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Experimentation has become a popular way for organizations to test out innovations and to learn about their customers in order to gain competitive advantage. Current research shows that the most common challenge in creating an experimentation culture is fitting it with the traditional development processes of an organization. This can be alleviated with certain organizational structures and management principles. However, academic research on this topic is lacking and focuses on how to create an experimentation culture and provides little guidance on how to maintain it.

This study aims to research how experimentation culture can be maintained after its initial creation, and what enablers and hindrances different levels of the organization encounter in their daily work. This is done through a qualitative study in the case company Elisa Oyj, a telecom company who started their journey towards an experimenting organization in 2009. The study entailed interviewing three levels of the organization: strategic, business, and experimenting levels. Analysis was done as a comparative analysis via open coding.

All levels noted different symptoms of the same core hindrances for experimentation: lack of vision and knowledge sharing. They also praised similar enablers such as autonomy and leadership commitment. While the enablers were similar to the ones found in literature for creating an experimentation culture, there were some differences due to experimentation being perceived as a standard way of operating, instead of a completely new activity. This study proposes action points for similar organizations to enhance their experimentation culture and to overcome the experienced challenges.

Keywords experimentation, managing experimentation, maintaining experimentation, organizational structures.

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Experimentation är ett populärt sätt för organisationer att testa innovationer och samla information om sina kunder och på så sätt nå konkurrensfördel. Nuvarande forskning om ämnet har identifierat att den största utmaningen med experimentation är att kombinera det med traditionella utvecklingsprocesser inom en organisation. Den här utmaningen kan lindras med vissa strukturer och ledningsprinciper. Nuvarande forskning ändå fokuserar sig på att skapa en kultur för experimentation, medan det finns lite information om hur man upprätthåller en sådan kultur efter dess skapande.

Det här arbetets syfte är att redogöra hur en kultur för experimentation kan upprätthållas efter dess skapande och hurdana möjliggöranden och hinder olika nivåer av en organisation stöter på i deras dagliga jobb. Det här görs med en kvalitativ studie i arbetets fallorganisation Elisa Oyj, en telekomorganisation som skapade dess kultur för experimentation redan i 2009. Tre nivåer av organisationen intervjuades: strategisk, affärs, och experimenterande. Analysen gjordes via öppen kodning.

Alla tre nivåer hade upplevt olika symptomen av samma hinder för experimentation: brist på gemensam vision för experimentering och brist på kunskapsdelning. Nivåerna berömde samma möjliggörare för experimentation som autonomi och ledarskapets engagemang. Dessa hinder och möjliggörare är lika med dem som är identifierande i nuvarande forskning om skapandet av en kultur för experimentation, men vissa skillnader uppstod på grund av att experimentation ses som ett standard sätt att jobba i Elisa. Det här arbetet rekommenderar praktiska åtgärder för organisationer som försöker stärka sin kultur för eksperimentation, som t.ex. att bygga tekniska förmågor för experimentation tillsammans med kulturella förmågorna.

Nyckelord experimentation, kultur för experimentation, organisatiosstrukturer, upprätthåll av eksperimentation

Acknowledgments

Suddenly, I find myself writing this last part of my thesis and I am faced with the fact that my studies have reached their end. Wow. Imagining this moment as a freshman six years ago I was sure I would be a full-fledged adult with a clear plan for the rest of my life at this stage. Thankfully, this is not the case. Today is not the day for plans and growing up. I have the rest of my life to do that. Today is the day to reflect on these past six years and give thanks to the wonderful people who made it the most special time of my life (so far).

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Contents

1 Introduction

This study aims to research how an experimentation culture can be maintained in a telecom organization, and what enablers and hindrances can be recognized. This chapter introduces the study in more detail, providing the background and motivation for it. Then the context of this study, Elisa Oyj, is introduced. Lastly, the structure of the study is presented.

1.1 Background and Motivation

There is a significant consensus of innovation playing a major role in the success of organizations. Tidd, Bessant and Pavitt (2001) and Ries (2011) claim innovation being essential for the survival and growth of any organization and it ensuring long-term success. Utterback (1994) expands this point by explaining how the lack of innovation is the prime source of business failure, causing even established organizations to fail if they are not able to keep up with their competitors and evolving customer needs. Innovation in itself is a multifaceted concept, with no clear consensus on a definition within academic literature. However, the common nominator in all definitions is change. For example, Tidd, Bessant and Pavitt (2001) associate innovation with renewal and change, both in an organization's offering and in the internal processes of the organization. This research follows a widely used and more practical definition of innovation which is as follows: Innovation is the creation and successful implementation of new ideas within an organization (Pierce and Delbecq, 1977; Amabile et al, 1996; Gumusluoglu and Ilsev, 2009).

However, innovation is not without its challenges. Many organization's struggle with creating innovations and never-before-seen offerings while maintaining their core business to ensure steady income, leading to many organizations

remaining stagnant in their innovation activities. Kanter (1989) discusses how innovation has traditionally been most associated with research and development departments and acquisitions. Outsourcing innovation to its own departments and separating it from core business processes only makes it another part of the organizational bureaucracy, making innovation processes slow and too conservative to achieve competitive advantage. Ries (2011) argues that innovation should be protected from the core business operations, allowing innovation its own room to develop and grow unaffected by the day-to-day of the organization.

Sawhney, Wolcott and Arroniz (2006) also stress the risk of connecting innovation only to creating new products, as innovation should create customer value. Innovation is of no use if the customer is not willing to pay for it, no matter how new the product is. Additionally, there is little room for an entrepreneurial mindset in a large and traditional organization, where new ideas are quickly turned down, resulting in a lack of spirit to pursue innovations. Kanter (1989) discusses this by making a distinction between mainstreams, which provide reliable revenue, and innovative newstreams, which are by definition meant to challenge mainstreams' ways of thinking, often resulting in conflict within an organization. Additionally, organizations who look for innovation through benchmarking best practices risk losing competitive edge by being too similar to its competitors. Utterback (1996) agrees with this statement, claiming that most industry-shattering innovations usually come from new disrupting start-ups instead of established competitors in the industry.

The above-mentioned challenges are all related to a well-known phenomenon within innovation: the innovator's dilemma as established by Clayton Christensen in 1997. Christensen (1997) explains how industry titans might have plenty of resources to respond to and overcome disruptors, but their inflexible processes and values are not equipped to adapt to quick market changes. Additionally, Christensen (1997) discusses how innovations are most often targeted towards niche markets that established organizations are not used to

serving. In these markets the timing has to be right, avoiding forcing the market to grow too fast or being too late and losing your competitive position.

The key to success through innovation lies in speed and being the first one in your industry to realize the potential in an innovation and bringing it to the markets. One development method of innovation which relies on speed and assessing the business value of new products and services is experimentation, which is the focus in this study. Experimentation allows organizations to test out innovations in authentic settings quickly in order to learn the potential market value and customer reactions to the innovation, either through its success or failure.

Lots of research has been dedicated to reviewing different ways to innovate and how to build an innovation organization, and how to avoid the above-mentioned challenges. Concepts closely related to experimentation such as piloting, prototyping, and exploratory activities have been researched extensively. However, there is little academic research with a focus on specifically experimentation as an innovation activity, but the overwhelming amount of discussion around experimentation in management journals in recent years implies a growing interest in the subject.

1.2 Context

The target of this study is Elisa Oyj, the leading telecommunication company in Finland in regard to market share. Elisa was founded in 1882, originally named Helsingin Puhelin. In 2018 Elisa's revenue was 1,83 billion euros and employed 4900 employees (Elisa Oyj, 2020A). Elisa's core business lies in phone and broadband subscriptions both for consumers and businesses, but it has significant activities in other aspects of telecommunication, such as the Elisa Viihde streaming service and content production business, Elisa Kirja audiobook service, device retailing, and Smart Home applications, to name a few.

The telecommunication industry is highly competitive due to the large pool of potential customers, which includes nearly every resident and company in

Finland. Additionally, the competitors in this industry are very homogenous in terms of prices, offerings, and services, and customers can switch providers easily. Utterback (1994) warns about highly established business models being at risk for disruption from new competitors. This risk was noticed recently when the new operator Moi Mobiili entered the market in 2016 with a new technological strategy by renting cellular networks instead of building its own. Additionally, Moi offered novel products, such as bundles of sim-cards and no fixed-term contracts, branding itself as the customer-centric provider for the "anarchist who wants more freedom in the use of mobile services" (Moi, 2020). Even though Moi was acquired by the operator DNA in 2019, its initial success proved a demand for a different kind of phone operator than what was available in Finland at the time.

To stand out from the competition and in an attempt to avoid disruption, telecommunication providers resort to innovation. This can mean competitive advantage through technological innovation, improving current services, developing novel ways of customer service, or finding new markets to embark on. This need for innovation is reflected in Elisa's values, which include learning and continuous improvement, learning from mistakes, and finding new ways of working (Elisa Oyj, 2020B). In practice, Elisa has gradually adopted a culture of experimentation since 2009 after recognizing the need for continuous learning and improvement due to the growing complexity of the world and customers. This change in culture can be seen in media articles discussing Elisa's culture of experimentation (Ketola, 2019; Uusivirta, 2018). Additionally, Elisa has published several posts about the matter – a search of the word "experimentation" results in multiple posts in Elisa Hub, the online article sharing platform for Elisa. Elisa also arranges internal programs about experimentation for its employees, both for developing businesses and improving their own processes through experimentation. The programs use frameworks such as Lean Startup, Design Thinking, and both Improving and Coaching KATA.

However, all of the above show no implication of how the culture of experimentation is implemented in the day-to-day of Elisa. Articles and blog

posts are mainly used for external communication and brand building, while internal training and transformation programs are separated from the daily operations and the core business of the company. This study researches how the strategy-level vision of experimentation culture fits into the daily activities of Elisa and how experimentation culture can be maintained in a highly competitive industry with fairly conforming ways of operating.

1.3 Structure of the Study

This study is divided into seven chapters, the first one introducing the background and context of the study. Then, the literature behind the main concept in this study is discussed: experimentation culture, forming the basis of this research by seeking the theoretical implications of the subject. The third chapter introduces the research questions and the overall purpose of this study, followed by a review of the methodology for the empirical part of this study in the fourth chapter, discussing the chosen methods for the data gathering and data analysis processes. The fifth chapter presents the results of the empirical research, while the sixth chapter aims to answer the research questions supported by the theoretical and empirical implications. Finally, the seventh chapter provides both theoretical and practical implications for the case organization and organizations similar to it, followed by a review of the limitations of this study and opportunities for further research.

2 Experimentation

The basic values of experimentation, user-centeredness and iterative development, originate from the 1980s when the term user-centred design was first introduced by Norman and Draper (1986) and NASA finished the Mercury project in 1980, which is one of the earliest usages of iterative development (Larman and Basili, 2003). Since then, it has evolved into a set of principles and different adaptations, such as prototyping, participatory design, and usability engineering. In 1999, ISO 13407: *Human-centred design processes for interactive systems* was published and served as the original standard for user experience (Iivari and Iivari, 2006).

Currently, these practices are part of *lean* pioneered by Toyota in the 1930's. Womack and Jones (1994) describe lean as production by a continuous flow made possible by cross-functional teams, eliminating all unnecessary steps and therefore significantly lessening the resources of production compared to traditional development methods. Lean practices also offer flexibility and quicker response for customer needs (Womack and Jones, 1994). Lean includes many popular methods, such as 5 whys, Just-In-Time, and Kaizen. Experimentation falls under the umbrella of lean, as it strives for continuous improvement and cost-efficient development. These aspects of experimentation will be discussed more in chapters 2.1 and 2.2.

Even though experimentation has a long history, the term known in its current form stems from entrepreneurship, where the interest and potential customers of a new product or service are unknown. Experimentation was made popular by Eric Ries's The Lean Startup in 2011. With experimentation, organizations can remove uncertainties when creating new products by testing it among real users in authentic settings and gathering valuable information about the product and

how to develop it further (Hassi, Paju, and Maila, 2015). By doing so, organizations are more informed about the potential business value of their offering and how to further improve their products, without having to risk significant amounts of resources (Kerr, Nanda and Rhodes-Kropf, 2014).

In the context of this study experimentation is a process of trying something in order to learn. It can be applied to product, process, and personal development. However, it is not as straightforward as it might sound as most lean practices differ from traditional development in terms of required management and structures (Womack and Jones, 1994). It is also a highly disciplined practice, when done right. The discipline, the process, and the appropriate management and organizational structures build up to an experimentation culture throughout the organization, encouraging employees to partake in experimentation. These aspects are the focus of this chapter.

As mentioned in the introduction, there is little academic research about experimentation specifically. Therefore, this literature review includes implications to literature closely related to experimentation, such as Kanter's (1989) review on newstreams, Tidd's, Bessant's and Pavitt's (2001) and Goh and Richards (1997) guidelines on creating a learning organization, and O'Reilly's and Tushman's (2016) discussion about exploratory activities. These will be the basis of chapters 2.3 and 2.4. As experimentation is a very practical activity this review is supported by popular practitioner journals, such as Ries's (2011) Lean Startup and Hassi's, Paju's and Maila's (2015) organizational manual for experimentation. These journals have a great impact on how organizations ultimately take practices into use and how the practice evolves through time. They also provide some insight on what makes experimentation unique from other similar development methods. These will form the basis for chapter 2.1 and 2.2.

2.1 Purpose of experimentation

Even though experimentation often has a start-up connotation, Ries (2011) explains how creating something new even in an established organization can be

seen as entrepreneurial activity. Experimentation is an approach to product development, where the problem you are trying to solve is unknown and the outcomes are uncertain (Ries, 2011; Lee et al, 2004; Hassi, Paju, and Maila, 2015). These kinds of problems can be described as wicked problems, according to Buchanan (1992). Wicked problems are difficult or impossible to solve due to the problem's changing requirements and unclear definition. They have no single correct solution; solutions may only be good or bad. (Buchanan, 1992) Solving a wicked problem is creating a solution that has never existed before. Therefore, wicked problems cannot be solved by extensive planning, as well-researched plans rely on history and predictions, and are thus inapplicable for unknown terrains.

By solving wicked problems during product development, organizations are able to create new and innovative products, business, services, or even inner processes. Experimentation helps organizations to validate if the product is filling a user need, and therefore has business potential. This is achieved by enabling instant user contact with the new product, testing unfinished products, and gathering user feedback about the product as fast as possible, creating a cycle of learning with as little wasted resources as possible. (Ries, 2011; Hassi, Paju, and Maila, 2015) Goh and Richards (1997) stress the importance of fast learning in a competitive environment and thus gaining competitive advantage over your slower competitors. Hassi, Paju and Maila (2015) also recognize the need for fast learning in order to survive a rapidly changing environment.

In addition to learning, one of experimentation's cornerstones is a tolerance for failure. Ries (2011) and Hassi, Paju and Maila (2015) agree that if you cannot fail, you cannot learn. It goes without saying that trying, failing, and trying again until you succeed is a natural way of learning anything related to problem solving. This often brings a conflict with traditional management in which failure has a negative connotation and should be avoided at all costs even though history has proven many times, in the form of e.g. penicillin and lightbulbs, that major breakthroughs can come through failures and accidents (Lee et al, 2004). The

process of learning through failure and creating a cycle of learning will be further discussed in chapter 2.2.

Experimentation is often confused with prototyping or piloting (Hassi, Paju, and Maila, 2015). Nieveen (1999) discusses prototypes to be all the versions of a product before the implementation of the final product that may be released to markets. It is a cost-efficient and user-centred way to test out a product and its features iteratively and it is often used in the creation of innovative products. Piloting, on the other hand, are the first versions of a released product, testing how the market reacts to it (Hassi, Paju, and Maila, 2015). On a surface level, these might sound like experimenting and often these terms are used interchangeably. The differences lie in an experiment being the minimum version (MVP) of a fully functioning product, which can be released to the market with the intention to learn and remove uncertainties, while prototypes are not made to be released to markets and pilots aim for success in product performance. However, prototypes may be used in the process of experimenting and a pilot can be the outcome of a product that has been developed through experimentation.

Additionally, development through learning is far from a novel idea. Experimentations, testing hypotheses, and learning have long been the basis of scientific research. However, in a traditional sense experimentation is used to determine outcomes of different actions in a highly controlled environment, for example in a laboratory. In this context, the unique aspect of experimentation is testing in an as authentic environment as possible and among real users and customers instead of chosen research subjects.

Hassi, Paju and Maila (2015) recognize four ways in which experimentation provides value for the experimenting organization. First, experiments create knowledge and information. Experiments aim to generate information that remove uncertainties an organization might have in creating a never before seen product or service. Through experimentation the organization also gains valuable experience in implementing the product. Second, experimentation creates options. The project may change along the way due to the information gained by

experimentation, and the final outcome might change form throughout the process. Additionally, new and improved ideas may come to light, as well as practical information about what kind of approach is best suited for this project. Third, experiments improve customer relationships because experimentation aims to solve validated customer problems and involves customers in the development process. Fourth, experimentation tends to attract resources, due to experiments gaining a lot of interest and excitement within the organization and among the customers.

So far, we have established that experimentation can be used to solve wicked problems in product development and to create innovative products for a validated user need by removing any uncertainties in the development process with the help of small tests that create new knowledge. This results in competitive advantage due to fast development and implementation, minimum waste of resources, and stronger customer relationships. Next, we discuss the process of experimentation in order to achieve these goals.

2.2 The process of experimentation

Experimentation can be done in many forms and is included in many known frameworks such as the Lean Startup, KATA, and Design Thinking. Table 1 compares these frameworks to the main focus of this chapter; experimentation by Hassi, Paju and Maila (2015).

Name	Nature of Test	Learning Loop	Goal	Purpose
Experimentation by Hassi, Paju, and Maila (2015)	Experiment / Prototype	Goal-setting – Need – Ideation – Experiments – Results	Create customer value	Remove uncertainties by creating knowledge.
Lean Startup	Minimun Viable Product (MVP)	Build – Measure – Learn	Validate the business potential of a new product	
Design Thinking	Prototype	Empathise – Define – Ideate – Prototype – Test	Solve user issues in a human-centric manner	
KATA	Change in behaviour	Plan – Do – Check – Act (PDCA)	Learn a new skill or set of behaviours	

Table 1: Comparison of experimentation frameworks

These frameworks have some similarities and differences, but the purpose of experimentation remains the same: removing uncertainties when developing a new idea by creating knowledge through experiments. In this chapter, we review the experimentation process as Hassi, Paju, and Maila (2015) describe it in their organizational manual for experimentation, providing a standard process for conducting an experiment free from the specificities of more well-known frameworks, such as Lean Startup or Design Thinking. Hassi, Paju, and Maila (2015) recognize five phases: goal setting, need, ideation, experiments, and results.

Hassi, Paju and Maila (2015) explain that the experiment can begin in three ways: by setting a goal your organization wants to achieve, by recognizing a customer need that is not being fulfilled, or simply having an idea you want to test. These ways can also overlap with each other and they might change as you start experimenting and create more information. For example, in Lean Startup, the initial goal is to validate the business potential of a new product, Design Thinking seeks to solve user issues in a human-centric manner, and improvement KATA aims to learn a new skill or set of behaviour. The experiments themselves consist of four subphases: recognizing uncertainties, building the experiment and prototypes, gathering data, and analysis and reflection (Hassi, Paju and Maila, 2015). With each experiment, the final result will become clearer.

By recognizing uncertainties, you are able to understand what you need to learn (Hassi, Paju and Maila, 2015). In KATA, the basis of improvement is acknowledging what your goal is and closing the knowledge gap between your current state and the desired state through experimentation. Hassi, Paju, and Maila (2015) also discuss recognizing uncertainties as breaking the overall goal into smaller pieces you can test and validate. Ries (2011) discusses how this is the core of the Lean Startup process: breaking a business plan into smaller parts and testing each part.

The next phase in the experiment is building the prototype. The prototypes may vary depending on the idea you are experimenting with. The prototype should

generate as much knowledge as possible to answer the defined uncertainties. (Hassi, Paju, and Maila, 2015) In Lean Startup, the prototype is known as the minimum viable product (MVP), which is a functional product that can be released to markets (Ries, 2011). However, the experiment is not necessarily a concrete product to test. If the experimentation aims to improve processes or ways of working, the prototype may take the form of a change in behaviour, as is the goal of KATA.

When the prototype or change in behaviour is tested, it is crucial to gather feedback. This is a highly scientific method. Setting out hypotheses, defining metrics, and measuring outcomes caused by the change of a variable has been the basis of scientific thinking for centuries. Hassi, Paju, and Maila (2015) stress the importance of gathering data about user behaviour in an as authentic situation as possible, giving you reliable knowledge about the performance of the idea. Ries (2011) discusses the crucial role of metrics in the data gathering phase. He warns about vanity metrics, such as new customers or total number of customers, since they do not measure the sustainability of a new idea. Metrics should be actionable, accessible and auditable. Actionable means they show a clear cause and effect between the experiment and the data, accessible means they are written in a clear language avoiding any disciplinary specific jargon, and auditable means the data should be creditable and made available to everyone involved (Ries, 2011).

The last step in the experiment is reflection. Hassi, Paju, and Maila (2015) discuss the importance of reflection, as the goal of experimentation is to create new knowledge. The only way to fail an experiment is by not learning anything from it. The Lean Startup considers this phase as the choice between preserving, piloting, or killing, i.e. determining if the idea was validated and can be preserved, if the idea and experiment needs to be pivoted to test something else, or if there is no interest or potential for the idea and it should be killed completely (Ries, 2011). The reflection gives direction for your next experiment to close the next knowledge gap on your way to your final result.

As already mentioned, the process described above can be adapted to many purposes and disciplinaries. In Lean Startup, it is more commonly known as the build-measure-learn loop, while in KATA continuous improvement can be achieved by Plan-Do-Check-Act (PDCA). In Design Thinking, it is known as the Empathise-Define-Ideate-Prototype-Test process. The goal of each loop is to do it as resourcefully as possible, wasting as little time and money as possible.

Ries (2011) recognizes many practical issues experimentation might bring with traditional development and project management. Many organization's struggle with releasing anything half-finished or anything of low quality to the use of their customers, fearing it will represent a sloppy image of the organization. This is however necessary for fast iteration. Ries (2011) argues that customers are more forgiving that most organizations believe. Also, the choice in preserving or killing might prove difficult. Badly measured experiments might show false hope of success, unclear hypotheses make it harder to recognize failure, and many fear being wrong and killing your own project you have believed in. (Ries, 2011) Additionally, political issues in your organization might make you hesitant to recognize failure, in fear of jeopardizing your reputation or position. In the next chapter, we discuss the conflict between experimentation and traditional development and what managerial challenges experimentation might bring.

2.3 Experimentation and traditional development

As briefly mentioned in the introduction, experimentation has different organizational requirements than traditional development processes that run the main operations of an organization. These requirements include keeping experimentation separate but parallel to the core business operations of the organization (Kanter, 1989; Ries, 2011) and finding entrepreneurial spirit in an established and inflexible organization (Sawhney, Alcott, and Arroniz, 2006). Hassi, Paju and Maila (2015) claim that most organizations understand the purpose and value of experimentation as described in the previous chapters, but few are aware of alternative approaches to development besides traditional planning and what capabilities they would require. As there is little research

about the relationship between traditional development and experimentation specifically, it can be compared to academically well-known phenomena such as combining mainstreams with newstreams pursuits within an organization and pursuing exploitation and exploration. These will be the focus point of this chapter, providing some insight to how experimentation can be combined with traditional development.

Kanter (1989) discusses mainstreams as the core activities of an organization while newstreams are new ideas and activities that will provide benefits and revenues in the future. In order to find long-term success, organizations need to combine these two, mainstreams providing stability and steady profits while newstreams enable reacting and adapting to a changing market. However, managing these two opposites proves to be a challenge for many organizations, as newstreams are by definition meant to challenge the mainstreams and standard ways of thinking and doing.

Kanter (1989) reviews some key characteristics of these two streams: mainstreams are established ways of working within an industry, consisting of benchmarking and shared best practices among competitors. These are easy to copy and implement and they have been proven successful in the past. However, they often risk stagnation due to their inflexible nature. Newstreams are synonymous with innovation and thus have high uncertainty and risk and are not able to produce instant revenues or follow a standardized quarterly calendar rhythm, which makes newstreams impossible to track with traditional financial metrics often associated with mainstreams. Due to these opposite characteristics of mainstreams and newstreams, they need different management styles in order to coexist.

In the context of this study, newstreams take the form of experimentation and mainstreams represent the core business processes of an organization. Experimentation and newstreams share characteristics such as being unpredictable and not suitable to track with traditional financial metrics. Mainstreams on the other hand are like core business operations of an

organization in regard to their reliability, which leads to them being inflexible and unable to adapt to fast changes. Traditional management styles, such as careful planning, well-defined metrics, and performance targets suit mainstreams, but these are not suitable for newstreams. Kanter (1989) presents three management requirements for newstreams: managing high uncertainty, high intensity, and high autonomy.

In terms of high uncertainty, newstreams require committed leadership with faith in the idea, resources that do not rely on short-term return, and flexibility of the original idea to adapt to any forthcoming realities. Regarding high intensity, newstreams need concentration and focus to capture knowledge fragments, close and respectful teamwork with high knowledge exchange, and stability in the team. In terms of high autonomy, newstreams require identifiable and even separate spaces for mainstreams and newstreams, own system and procedure design, and freedom to use or ignore mainstreams when needed. These requirements are often interfered by mainstreams' management styles – high intensity being slowed down by extensive reporting duties, high autonomy being disrupted by uniformity requirements within the organization and cycling newstreams ventures through mainstreams channels and processes.

O'Reilly and Tushman (2016) explore this same tension found between experimentation and traditional development in the form of balancing exploitation and exploration within an organization. This balance would entail exploiting existing capabilities within the organization while exploring new opportunities to adapt to changes in the market. These concepts draw a close parallel to Kanter's mainstreams and newstreams concepts, as exploitation provides great certainty and reliable success, while exploration is by nature risky (O'Reilly and Tushman, 2016).

O'Reilly and Tushman (2016) discuss the issues in managing both exploration and exploitation simultaneously. Organizations may overinvest in exploitation while underinvesting in exploration, due to exploration being seen as a distraction that does not provide enough revenues or it not meeting standardized

financial targets. Also, success in the exploitation, i.e. in the core business, leads to organizations wanting to improve on its existing capabilities and optimize exploitation instead of focusing on creating new capabilities by exploration, ultimately risking stagnation and loss of competitive edge.

To balance exploration and exploitation, O'Reilly and Tushman (2016) suggest using different success criteria for exploration and exploitation and highlighting the difference between managers and leaders. Kanter (1989) and Ries (2011) also warn about using traditional financial metrics, such as amount of sales, when measuring the success of innovation, O'Reilly and Tushman (2016) suggest using scale tracking, such as number on new customers, retention, and bounce rates when measuring exploration. Additionally, leaders of the organization should promote exploration while the managers' focus is on exploitation and its efficiency. The organizational structures to encourage explorative behaviour will be further discussed in 2.4.

To summarize, the organizational requirements for managing experimentation by Kanter (1989) and O'Reilly and Tushman (2016) are as follows:

- Committed leadership with faith in experimentation
- Resources that do not rely on short-term return
- Ability to use core business resources without its interference
- Separate processes for experimentation and the core business
- Flexibility to sudden changes
- Metrics focused on scaling instead of profits
- High degree of focus and capability to capture knowledge
- Close teamwork with high stability to ensure knowledge sharing.

2.4 Enabling an experimentation culture

Tidd, Bessant and Pavitt (2001: 336) define organizational culture as the "pattern of shared values, beliefs and agreed norms which shape behaviour", which is affected by the structures and processes of the organization. Changing the

structures and processes within an organization can change the culture and thus change employee behaviour. So far, we have established that experimentation means fast learning and being comfortable with the potential of failure. This entails changing prevalent attitudes within most industries of all efforts having to result in profit and failure should be avoided. Taking these definitions into consideration, in this study experimentation culture is defined as the organizational structures which change employee behaviour to favour fast learning and to allow failure. In this section, the organizational structure for encouraging fast learning and allowing failure are explored.

Education and training is highlighted as a central feature in enabling experimentation. Thomke (2020) expresses not only seeking and hiring curious employees who are eager to learn, but having a strict onboarding process, teaching new employees about experimentation and the needed tools for it. This will enhance experimentation within an organization. Additionally, Tidd, Bessant and Pavitt (2001) discuss the importance of individual development throughout the employment, encouraging employees to change their behaviour to a more explorative nature and equipping them with the necessary skills to do so, which is crucial for experimentation. Continuous training also creates a climate and habit of continuous learning, which can be applied to the daily work of the employees, inspiring experimentation throughout the organization.

Creating a cohesive onboarding and training plan requires the organization to develop a shared vision of experimentation within the organization, which is of high importance in nurturing an experimentation culture (Goh and Richards, 1997; O'Reilly and Tushmore, 2016). Employees should know about the desired state of the organization and understand how their actions affect the success of the organization, and what learning steps they should take in order to achieve it. O'Reilly and Tushmore (2016) also mention a clear strategic intent within the organization to increase exploration. The strategy needs to be clearly communicated throughout the organization. Without a convincing justification for exploratory efforts, the pressures of the core business will substitute exploration and experimentation (O'Reilly and Tushmore, 2016). A clear strategy

and vision will lead to a shared sense of identity and purpose, creating a common goal among employees and lessen the competition of resources and employees regarding exploration as a distraction.

Resourcing plays a major part in any organizational activity and reflects well on which activities the organization and the leadership values (Amabile et al, 1996; O'Reilly and Tushmore, 2016). Goh and Richards (1997) discuss how experimentation should be allocated its own resources in both budget and time, so it doesn't get neglected by the other daily operations of the organization. Proper resourcing will allow for an increase in the amount of experiments which in turn is crucial for the tolerance of failure within an organization. Thomke (2020) also discusses the importance of a high volume of experiments, as it will increase the potential of successes while diminishing both the emotional and financial risks of failures. Ries (2011) on the other hand agrees on proper resourcing but recommends scarce resourcing. Resourcing should be secure but too much of it will generate a lack of focus as experimenting teams can rely on the buffer in the budget.

Incentive models are a powerful tool to encourage certain employee behaviour, as few are willing to spend time and energy on tasks that will not be compensated for and diverts attention from tasks that will be rewarded. Traditional pay-for-performance incentive models do not encourage innovative and explorative behaviour, which have a high risk to fail and do not provide instant profits (Manso, 2011; Goh and Richards, 1997). Exploratory activities provide long-term profits, either as incremental innovation that accumulates profits in the long run, or as radical innovation with high profits that might take years of experimentation to achieve. Manso (2011) suggests stock options as an incentive model to encourage experimentation as it reflects the long-term success of the organization and allows for minor failures. Ries (2011) advocates for creating a personal stake in the outcome of experiments in the experimenting teams. In addition to stock options, this can mean non-financial rewarding as well, such as increasing transparency within the organization and giving credit to the creators of a new idea and maintaining their ownership of it. A lack of ownership and

credit can result in teams pursuing non-risk projects in order to please the management.

In addition to formal organizational structures, the practicalities of everyday work can also encourage or discourage experimentation. Experimenting teams should have autonomy and minimal dependency on management in order to be able to act as fast as possible and maintain focus on the vision without managerial involvement in the work (Goh and Richards, 1997; Ries, 2011). Concerning the composition of the team, teams should be as cross-functional as possible to enable the teams to do experiments from start to finish as easily as possible, without needing interference from others (Goh and Richards, 1997).

To summarise, the enablers for an experimentation culture by Goh and Richards (1997), O'Reilly and Tushmore (2016), Thomke (2020), and Tidd, Bessant and Pavitt (2001) are as follows:

- Continuous training programs
- Strict onboarding to the experimentation culture
- A clear vision and strategy for experimentation
- Dedicated resources for experimentation
- High amounts of experimentation to increase the chance of success
- Incentive models that do not rely on traditional financial metrics
- Autonomy and minimal dependency for experimenting teams.

3 Research Questions

The literature review established the purpose of experimentation, the process of experimentation, fitting experimentation with other core operations of an organization, and the organizational structures needed to create an experimentation culture. While existing literature focuses on how to implement a culture of innovation and experimentation in an organization, few study the maintenance of this culture after its initial implementation and how they affect different levels and operations of an organization. This study aims to research how a telecom organization with a strategic-level commitment to experimentation since 2009 has been able to sustain the commitment throughout different levels of the organization.

The research question and its sub-questions for this research are as follows:

1) What enablers and hindrances can be found in maintaining an experimentation culture in a telecom organization?
   a) How can experimentation fit into traditional development?
   b) What organizational structures are necessary for an experimentation culture?
   c) How does experimentation manifest itself in different levels of a telecom organization?

The main research question is divided into three sub-questions. The first sub-question 1a examines the relationship between experimentation and traditional ways of innovation, as experimentation is often implemented and fitted into an existing culture and existing ways of innovation. This is also the case with Elisa Oyj, as the 138-year-old organization has implemented an experimentation culture just within the past 10 year.

The second sub-question 1b researches the role of organizational structures in the maintenance of experimentation culture, due to the fact that exploratory activities have different requirements than maintaining the core business in a traditional industry, in which the telecommunications industry falls under.

The third sub-question 1c studies how different levels in an organization implement experimentation, as numerous traditional processes and functions within Elisa should now take experimentation into consideration as well. It also gives insight to how the strategy-level vision of experimentation fits into the daily activities of Elisa.

The overall purpose of this study is to provide guidance to organizations similar to the case organization Elisa Oyj about how to overcome common hindrances and to enhance the enablers for experimentation culture based on empirical research.

4 Methodology

In this chapter, the methodology of the study's empirical section is presented. First, the overall research approach is discussed, justifying the chosen methodology and the objectives of the empirical research. Then, the process, methods, and practicalities for the data collection are reviewed. Lastly, the analysis approach for the collected data is presented.

4.1 Research Approach

This study's research question aims to recognize the organizational enablers and hindrances for experimentation in the case organization Elisa. Chapter 2.4 established that the success and proper use of experimentation is highly dependent on employee behaviour, which in turn is affected by structural factors within the organization. It is important to research the employee's personal experiences and perception of experimentation in Elisa and to understand what affects their behaviour in regard to experimentation. Therefore, the empirical study will be a qualitative research, more specifically of an exploratory nature. Kothari (2004) argues that qualitative studies are most appropriate for behavioural sciences and to uncover the motivation for certain behaviour and to additionally analyse individual's likes and dislikes towards experimentation in this case. Silverman (2004) further argues that qualitative data provides a deeper understanding into a phenomenon than quantitative data.

The research approach is of exploratory nature according to Kothari's (2004) definition, meaning it seeks to uncover and discover something unknown, in this case, what is the subjectively perceived experimentation culture in different organizational levels of Elisa. First, interviews were done to different categories of employees in Elisa. Then, the interviews were transcribed and structured by

open coding. Lastly, comparative analysis provided final results of the empirical section of this study. These methods, motivations for them, and the practicalities of them will be discussed in more detail in the following sections.

The empirical research aims to identify the enablers and hindrances for maintaining an experimentation culture in the case organization. This will be done with the help of the research sub-questions by researching the relationship between traditional development and experimentation, identifying key organizational structures that affect experimentation, and comparing how experimentation is implemented and perceived at different levels of the case organization.

4.2 Data Collection

Exploratory qualitative research often uses in-depth interviews as a form of data collection. The data collection in this study consisted of semi-structured interviews, targeted at three categories of research subjects. Here, the three categories and the motivation for them will be presented along with further details of the interview setting.

4.2.1 Research subjects

The selected interviewees can be divided into three categories: the strategic level, the business level, and the experimenting level. These categories do not represent any formal division within the case organization, neither do they present any formal relationships between the chosen subjects. This categorization was done in order to study how experimentation is implemented for the three main levels of an organization like the case organization. These levels also have most contact with experimentation. Specific tasks, titles, and teams of each subject will not be disclosed to ensure their anonymity.

The *strategic level* are individuals who have a strategy-level responsibility and interest in experimentation in Elisa. They are able to shed light on the vision for experimentation within the organization and its backgrounds and purpose, as

chapter 2.3 discusses the importance of a shared vision and proper leadership in enabling an experimentation culture. The representatives for this level were chosen by identifying the key individuals who have previously taken part in creating or are currently in charge of maintaining the overall experimentation culture in Elisa.

The *business level* represents the group of individuals who do not conduct the experiments themselves but utilizes experimentation in the decision-making and development in their area of responsibility. This category is able to discuss how experimentation fits with and impacts the business activities of Elisa, as chapter 2.1 explains how experimentation can be used as a tool for finding and assessing business opportunities. The interviewees were chosen by identifying individuals who regularly conduct experimentation in their respective business areas and are thus experienced in the matter.

The third category, the *experimenting level*, is the most grassroot level of these categories. They are individuals, whose work is focused on conducting experiments in Elisa. They are able to give insight on how the vision for experimentation is implemented on a practical level. More importantly, they are able to identify enablers and hindrances for running experiments within Elisa, as chapter 2.4 presents organizational structures that facilitate conducting experiments. The experimenters were chosen from teams that are dedicated to conducting experiments in Elisa and thus have extensive experience of it.

The purpose of the interviewee categories is not to sample the population of Elisa employees. It simply aims to provide different viewpoints and personal experiences about experimentation from different levels of Elisa.

4.2.2 Interviews

Semi-structured interviewing was the chosen method for collecting the data for the empirical section of this study. Interviews have many advantages which suit the practicalities of this study. Kothari (2004) reveals these advantages, such as

the flexibility of interviews and how they can be modified during the study process, if need be. Additionally, the researcher has control of the interview subjects, making sure the subjects are relevant for the topic. Interviewing also secures the obtaining of data, compared to e.g. surveys which can easily be left unanswered. Securing responses is crucial due to the time constraints of this study and the comparability of the different interviewee categories. Finally, interviews might result in more spontaneous and authentic data, due to subjects having to answer the questions in the moment of the interview.

Semi-structured interviewing allows the setting to be informal and conversational (Longhurst, 2003), which allows the subjects of this study to feel comfortable and to be honest in the interviewing situation. The loose structuring of semi-structured interviewing allows the results to be comparable between the interview groups, excluding the option of using completely unstructured interviewing for this study. The comparability of the results was necessary for the analysis phase. Additionally, as Newcomer, Hatry and Wholey (2015) point out, semi-structured interviewing provides flexibility of the interview questions, allowing both closed and open-ended questions and the possibility to dwell deeper into a subject by asking follow-up questions, fitting with the exploratory nature of this research. The researcher's position also affected the choice of the research approach. The researcher has professional experience in conducting in-depth interviews and feels that she has the appropriate skills to build an interview study.

The interview questions revolved around three themes:

1. What does experimentation culture mean to you?
2. In your experience, how is the experimentation culture implemented in Elisa?
3. What enablers and hindrances for experimentation have you encountered in Elisa?

These themes are derived from this study's research questions. The first question aimed to study how aligned the meaning of experimentation is throughout the organization. The second theme dives into personal experiences to understand how each level experiences experimentation in their daily work. The third theme is directly according to the main research question of this study, identifying key enablers and hindrances for experimentation in the case organization.

The questions within these themes differed a bit between the interviewee categories, due to the difference in their daily work and how it's affected by experimentation. The strategy level was asked about the strategic motivation behind experimentation in Elisa, defining the organization-level vision of experimentation. The business and experimenting level had the same structure of questions, as they were able to give insight how experimentation is perceived on an organizational level and in practice. The interview questions for each category can be found in appendices 1-2. The interviews were conducted in Finnish, as it was the first language of every interviewee.

Silverman (2004) warns about the reliability of interviews, as interviewees may try to answer the question correctly instead of how they would actually act. An attempt to avoid this was to ask the interviewees to think back to recent experiments they have been a part of and answer the questions according to that experience. This enabled the interview to obtain information about real situations instead of hypothetical ones. The interviewees were also ensured anonymity, encouraging the subjects to speak as candidly as possible. The questions were additionally designed in order to hide any of the researchers own assumptions, avoiding questions with an obvious positive or negative connotation, as this might have led interviewees to answer in a certain way. With these measures, the interview research remained as objective as possible.

The number of interviews was as following: 4 from the strategic level, 5 from the business level, and 3 from the experimenting level, resulting in a total of 12 interviews. The interviewee amounts of each category differed due to varying amounts of experimenting teams and business teams, and due to the availability

of interviewees from each level. Interviews were the only method used in the data collection and is considered sufficient for the purpose of this study because interviews can provide a deep understanding of the interviewee's experiences (Silverman, 2004). Additionally, a high number of interviews secured a sufficient scope of the research. The interviews were done in March-April and lasted 30-60 minutes each, as Newcomer, Hatry and Wholey (2015) recommend semi-structured interviews to last an hour at most, to not strain the interviewer or the interviewee.

Due to the global Covid-19 outbreak in the spring of 2020, the interviews could not be conducted in person. Instead, the interviews were done via remote communication tools, such as Microsoft Teams and Skype. The audio from the interviews was recorded for transcription purposes, if the interviewee allowed it. No interviewee refused audio recording.

4.3 Data Analysis

The data from the interviews were analysed by open coding and comparative analysis, which is a typical form of analysis for qualitative interview data. Coding enables interpreting the data according to themes and categories, and to recognize patterns among many interviews. Interviews should be transcribed in order to do open coding. (Gibbs, 2007)

The transcriptions were done from the recordings of the interviews. The transcription level was verbatim as categorized by Gibbs (2007). Verbatim means high-level transcription, excluding pauses, ticks, and repetitions. This is a sufficient level, since the content and codability of the interviews will be preserved while being able to transcribe the interviews in a timely schedule. The researcher did the transcriptions herself in order to become familiar with the data before the actual analysis phase.

The transcriptions were analysed with open coding. Open coding means not establishing the codes before you start the analysis (Gibbs, 2007). This allows for

approaching the data without any assumptions about what the results will be and offers more reliability to the interpretations, as the codes are more flexible and can be revised throughout the coding process. Gibbs (2007) presents three types of codes: descriptive, categorical, and analytical. The codes used in this study were categorical to avoid the shallowness of descriptive codes while avoiding the possible over-interpretation of analytical codes. To increase reliability, the codings were revised throughout the coding process to avoid duplicate codes and increase the cohesiveness in the codes. The coding was done with the help of the software ATLAS.ti. The codes, the code tree, and amounts of quotations can be found in appendix 3.

After the open coding, the analysis phase advanced to comparative analysis. Comparative analysis allows the analysis to recognize similarities and differences among the different categories of interviewees (Gibbs, 2007). Thus, models can be built for each interview category and how they perceive experimentation culture in Elisa. In this phase, the interviews were anonymized. This enables the comparative results to be added to this study, while maintaining the privacy of the interview subjects. The comparative analysis was done using Microsoft Excel.

5 Results

This chapter presents the results from the interviews with the representatives of the strategic, business, and experimenting levels in Elisa. As mentioned in chapter 4.1 the empirical study aims to answer the research question: What enablers and hindrances can be found in maintaining an experimentation culture in a telecom organization?

This chapter is divided into the interview answers of each interviewee level, allowing direct comparison between each level. The business and experimenting levels have additional interview results about the practical experimentation work in their teams, providing us with a comparison between the organization's vision and its day-to-day implementation. Lastly, the key similarities and differences regarding enablers and hindrances for experimentation between each level's results are summarised.

5.1 Strategic level

The interviewees of the strategic level viewed experimentation culture as an agile way to create new business and to improve both existing offerings and internal activities. It stems from realizing that things may not go as planned, so Elisa has to experiment, learn, and tolerate failure. Experimentation was seen as a disciplined practice and is one of the key points in Elisa's strategy.

As for the level of experimentation in Elisa, the interviewees of the strategic level felt that some parts do it somewhat, some parts do it well, and some parts don't do it at all. Coaching for experimentation is done throughout the company, and overall Elisa is on a good path in evolving its experimentation. The methods and practices of experimentation vary between departments and teams, but

opportunities for experimentation are recognized well and it is slowly becoming a routine course of action.

5.1.1 Purpose of experimentation

The interviewees of the strategic level saw the purpose of experimentation as being excellent in all Elisa's operations: being fast and adaptable, innovating meaningful and sustainable products, and creating value for customers and the society. This is achieved by having experimentation as a mandatory step in the development and decision-making in Elisa, and by learning and increasing understanding about the customer. With the help of experimentation, Elisa will have a competitive edge by finding new business opportunities the fastest.

"By experimenting, we can quickly and with small steps increase our understanding about something or about a problem, and create long-lasting solutions"

An interviewee of the strategic level about the purpose of experimentation

5.1.2 Enablers for experimentation

As for enablers for experimentation culture, the interviewees of the strategic level felt that experimentation and its purpose is well understood throughout Elisa. A lot of resources have been allocated to experimentation in the form of training programs and experimenting teams, and the top management is leading by example by attending the trainings as well. New KATA coaches are trained constantly, which will in turn facilitate the spreading of experimentation within the organization. Already there are very skilled experimenting teams in Elisa. Additionally, internal surveys show that employees feel allowed to make mistakes through experimentation, which is essential for learning and enhancing experimentation culture.

"There are two sides. First, we put in the resources for experimentation. Secondly, the fact that the top management does it, learns about it, and leads by example is really good and an absolute requirement for experimentation to take hold"

An interviewee from the strategic level about enablers for experimentation

5.1.3 Successes from experimentation

The interviewees of the strategic level have seen many successes within Elisa thanks to experimentation. Autonomy has been given where it is needed, Elisa has skilled teams that experiment and get impressive results, and according to internal surveys teams feel comfortable to fail. Experimentation comes more naturally in departments where lean ways of working are familiar, such as in software development and in departments that have been able to build itself around experimentation from scratch, creating a sandbox safe from the distraction of the core business. The training programs, such as KATA coaching, increase excitement about improving employees' own work even in the smallest ways. Even though Elisa has had successes in creating new products and saving major costs due to experimentation, many interviewees agreed that every small improvement to everyday life of the employees is valuable.

"We've had big successes but also small and permanent improvements to our everyday ways. There is great strength in that in the long term."

An interviewee of the strategic level about successes from experimentation

5.1.4 Hindrances in experimentation

The interviewees of the strategic level identified issues in not having systematic methods of experimentation in Elisa, such as having clear learning goals and good knowledge sharing practices within the company. There may be too much focus on having experimentation make profit instead of focusing on the learning aspect. Also, the interviewees felt that Elisa's experimentation is very distributed, leading to varying methods of experimentation. This leads to experimentation being fragmented and siloed and the lack of holisticness can lead to Elisa not achieving maximal value for customers and business through experimentation. However, the interviewees acknowledged that excelling at experimentation requires time and experience, and the change towards an experimentation culture is slow.

"We need to figure out when we can put profit targets for experimentation. If we expect profits too soon, the focus will shift from finding market compatibility to finding profits."

An interviewee of the strategic level about hindrances in experimentation

5.1.5 Evolving experimentation

As for evolving experimentation culture in Elisa, the interviewees of the strategic level had some concrete steps to overcome the current challenges. Experimenting capabilities could be centred, enabling a specific team to adopt a strict experimentation process which can then be spread throughout the company. This would allow for more systematic experimentation than currently. Also, experimentation should be expanded into finding new areas of business and radical innovation, as it is currently widely used for incremental improvement of existing offerings. However, some interviewees saw Elisa's experimentation culture being on the right track and not needing any drastic changes to reach these outcomes, it will only take time and practice.

"We need a change in culture to make people feel that it is everyone's job and prerogative to do experiments and improve our ways of working."

An interviewee of the strategic level about evolving experimentation in Elisa

5.2 Business level

The interviewees of the business level saw experimentation culture as continuously thinking how they can perform better. The experimentation process should be fast and result in validation for their assumptions and what conclusions can be drawn from them. Experimentation also means a change in culture, as nowadays you cannot know what you should do. Instead, you need to experiment and gather data in order to learn and decide what to do next.

The interviewees felt that Elisa is on a good track in building its experimentation culture and many understand the importance of it. The level of implementation varies throughout Elisa, and there are significant differences in teams and

individuals when it comes to experimentation practices. Overall, experimentation is very spread out. The interest in experimentation spreads through sharing success stories about performing well financially due to experimentation. Training programs also aid in increasing capability to experiment. However, the interviewees from business level had noticed a lack of vision for experimentation in Elisa and some would have wanted a more systematic way of experimenting. Also, experimentation is often bypassed by the profit-oriented goals of each team. Experimentation in Elisa is often of an incremental nature, unable to progress any larger vision or goals.

In their teams, the interviewees of the business level saw experimentation as a tool for development. In some teams, it is the core of what they do, and the basic way of working. The amount of experiments teams does varies depending on their resources.

5.2.1 Purpose of experimentation

The interviewees of the business level saw the purpose of experimentation in Elisa as increasing understanding of our customers, testing out new ideas, avoiding vain investments, and minimizing risks. By experimentation, Elisa is able to gain a competitive edge.

The overall purpose of experimentation on a team level is quite aligned with the team goals, whether it is increasing sales or minimizing costs. Providing customer value was also mentioned. Getting fast feedback from customers and validating own assumptions eliminates the need for guessing and decreases costs by doing the correct things right away. Most experiments aim to make a small but continuous profit, and one interviewee claimed that it feels nice to recommend and promote already experimented and validated ideas to managers.

"We don't need to guess anymore; we can actually test ideas with real customers and ultimately improve our performance"

An interviewee of the business level about the purpose of experimentation

5.2.2 Enablers for experimentation

Enabling experimentation culture in Elisa is the increasing interest in it, according to the interviewees of the business level. Other teams become interested when they hear about profitable results others have had thanks to experimentation. Additionally, the resources and training offered by the organization for experimentation indicates support and an awareness for the potential of it.

Many factors motivate the interviewees of the business level to experiment. Experimentation eases communication and eliminates arguing about whose idea is better. It is seen as a freedom to not having to know the correct answers right away. Saving costs, increasing sales, providing value for customers, and feeling that you have an impact on Elisa's business were also mentioned as motivating factors. Experimentation speeds up development and getting feedback you would never expect gives the feeling of doing the correct things. The trust, autonomy, and resources given to the experimenting teams also encourages the interviewees of the business level to experiment. Additionally, skilled and multidisciplinary team members is an opportunity for personal continuous learning about different viewpoints and skills. The experimentation trainings were also mentioned as a motivating factor, as it helps to understand what can be achieved by experimentation and the theory behind it.

In teams, resourcing plays a big role in enabling experimentation according to the interviewees. Having extensive knowledge about experimentation, the tools, and being familiar with Elisa and the context it operates in also aid in starting experimentation in your team. The interviewees also recognized the need for practice and experience to really excel at experimentation and getting the best value from it.

Some of the interviewees of the business level acknowledged that experimentation requires a new way of thinking compared to the traditional mindset of knowing what the customer wants only due to your professional

experience. The new way of thinking would mean having a growth mindset instead of completing your tasks with no further thought of how to improve them and being comfortable with not knowing the results before you try something. It takes bravery and perseverance to change old habits and not being discouraged by experiments that do not bring instant profits. Some interviewees agreed that being predisposed to experimentation in Elisa encourages this mindset little by little, even though you would not actively take part in it.

"Skepticism about experimentation lessens when we are able to show good results and significant increases in sales thanks to experimentation"

An interviewee from the business level about enablers for experimentation

5.2.3 Successes from experimentation

When it comes to successes in experimentation within Elisa, the overall increase in sales and minimized costs is an important one according to the interviewees of the business level. Additionally, resources, autonomy, and training opportunities show company-wide commitment to experimentation. Many see potential in experimentation in Elisa, just as long as Elisa gets better at it.

When asked about especially successful experiments, the interviewees of the business level described experiments with results that correspond with their targets, i.e. increases in sales or savings in costs. Other factors that contribute to successful experiments were a seamless and hindrance-free process throughout the experimentation, clear measures with clear results, and the possibility to build a solid business case around the experiment. It is easier to get successes in experiments where the results are easily transformed into monetary value compared to experiments which aim to increase customer experience or something else intangible.

"It is easier to get successes in experimentation in cases where the metrics are transactional and monetary instead of measuring customer satisfaction."

An interviewee of the business level about successes from experimentation

5.2.4 Hindrances in experimentation

The interviewees of the business level recognized many factors that hinder experimentation culture in Elisa. Most of them relate to the traditional structures of Elisa. Conducting experiments in inflexible and slow processes defeat the purpose of fast learning, fitting experiments into busy everyday tasks and profit targets is difficult, and scaling is difficult due to loss of agility. MVP versions tend to stay in production, harming sustainability of Elisa systems. Interviewees have also noticed a lack of experimentation management and coordination. However, they acknowledged that the spread of experimentation culture demands for a change in mindsets, which takes time. Only then can experimentation become an established habit throughout Elisa.

The biggest hindrances in doing experimentation in their teams are the activities and goals of the core business and the inflexible processes of Elisa. Experimentation is seen as an extra activity due to the lack of allocated time to do experiments and experimentation not fitting into the profit targets of the teams. The analysis of experiments is also affected by this, since there is seldom time to analyse and learn from the results as teams want to move on to the next project and chance to profit.

The profit targets also impact the purpose of experimentation, as many struggle with turning experiments into valid business cases, since often improved customer experience is difficult to turn into a monetary value. Teams in which experimentation is the standard way of working are most often hindered by slow processes in the company. Scaling an MVP into production, waiting for approval from others, trying to predict the work amount of experiments, and coordinating many sometimes conflicting experiments at one time are challenges the business level is faced with.

The interviewees of the business level had noticed some negative attitudes towards experimentation, which hinder its spread throughout the company. Some might see it as an extra slow step in development, not realizing the purpose

of experimentation being fast development. Others might be opposed to changing their ways of working and processes they have perfected throughout the years, or they might be scared about how customers and team target react to a test.

When asked about experiences with unsuccessful experiments, the interviewees of the business level mostly recalled situations where the practicalities of an experiment were lacking. This entailed disagreements within the team, having unclear targets for the experiment, something technical fails, or the experiment does not gather enough data to draw reliable conclusions from. Especially in cases where the experiment requires manual work or a change in routine, it often gets forgotten or buried in the hecticness of other tasks. This issue might be due to others not understanding the value of experimentation and why the manual work is necessary at times. However, close to all interviewees from the business level agreed that even in these situations there is always an opportunity to learn from your mistakes and do better the next time.

"For example, sometimes we have to choose between sending SMS's to 5000 customers for the sake of an experiment or sending SMS's to 20 000 customers to reach profit targets through sales. The resources for these options are identical, so naturally the one with the most sales potential is chosen."

An interviewee of the business level about hindrances in experimentation

5.2.5 Evolving experimentation

The interviewees of the business level would like to evolve experimentation in Elisa to a more systematic model. Having a set tool pack for experimentation, making sure experiments are followed through, and making experiment a habit of thought and a requirement in decision-making. Many also would like to have more sharing sessions about experimentation to learn about different ways to experiment and to spread experimentation throughout Elisa.

The interviewees had many ideas to improve experimentation in their teams, many being overcoming the already-mentioned hindrances. Some of the ideas were to have more resources and team members to do experiments, having more

time and effort put into analysing experimentation results, and being able to scale experimentation in Elisa and ease the MVP to production process. Personal goals were also mentioned, such as evolving your own experimentation capabilities and finding new ways to experiment and challenging your own mindset of not needing the correct answers right away but instead trusting the experimentation process.

"Our team should have more time and a clear process for focusing on the results of an experiment even when it didn't produce profits because learning is the ultimate goal of experimentation."

An interviewee of the business level about evolving experimentation in Elisa

5.3 Experimenting level

According to the interviewees of the experimenting level, experimentation is an agile way to develop business and trying new ideas to remove uncertainties before investing major amounts of resources into it. It requires being open to new and even strange ideas, but also discipline as experimentation is a highly systematic method, when done right.

The interviewees felt that the experimentation culture in Elisa is overall on a good level. Some areas do it well, some don't at all, and some lie in the middle. The capability to experiment is centred into a couple of teams, and the spreading of the culture is slow. Some feel there is a lot of talk and excitement about experimentation, which has decreased its discipline and resulted into not achieving the most value out of experimentation.

In their teams, the interviewees of the experimentation level use experimentation as their core tool for solving business and customer issues. It is also used as a good communication tool, as experimenting lessens the need of arguing over opinions.

5.3.1 Purpose of experimentation

The purpose of experimentation in Elisa according to the interviewees of the experimenting level was being able to identify ideas worth pursuing and discarding ideas with no potential for improved business or customer experience. By experimentation, Elisa is able to increase both profits as well as customer experience, providing a competitive edge. Experimentation is composed out of a loop of learning and data driven decision-making, but some of the experimenting level believed Elisa is sometimes pursuing instant wins with experimentation, instead of sustainable and holistic business development.

In their teams, the interviewees aim to achieve business and customer experience goals by experimentation. This means gaining customer understanding and also profit opportunities through experimentation. Teams test the sales effects of new features and validate new ideas by experimentation. Experimentation is a way to get evidence about the customer interest in something new. Some also aim for balance between experiments being based on facts, but also trying out bold ideas. Additionally, practical matters were mentioned, such as striving for the collaboration and communication throughout the experimentation to be as smooth as possible.

"Aside from the theories and proper implementation of experiments, I aim to communicate the process clearly to everyone involved, so that no one feels that I stepped on their turf."

An interviewee of the experimenting level about the purpose of experimentation

5.3.2 Enablers for experimentation

The interviewees of the experimentation level felt that many factors enable experimentation in Elisa. These include experimentation being well-known throughout Elisa and the support from upper management, which can be detected as autonomy, resources, and encouragement given to the experimenting teams. The interviewees recognized that it is easier to get people on board if they

know how experimentation will benefit them and their business, and sometimes it is best to work with people you know will collaborate smoothly.

The motivation to experiment varies among the teams of the experimenting level interviewees. The motivations included ease of communication as experimentation provides evidence, stakeholders and others being interested in the results, being surrounded by a competent team, and having explicit personal goals with financial rewards that encourage experimentation. Some felt experimentation is the core of their team's way of working and didn't seem to need specific incentives for experimentation. Some have bonus systems in place for experiments, but they questioned if the bonus metrics, such as NPS, actually reflect the experimenting work that they do.

As for what enables experiments in their daily work, autonomy and good collaboration were the main components. No outsiders meddling in the experiments and people trusting their business into the hands of experimentation enables experimenting teams to do it as effectively as possible. Also, the interest and buy-in from stakeholders in the experiment facilitates collaboration. Maintaining good relationships within the organization was also mentioned as a crucial aspect in being able to do experiments.

The interviewees of the experimenting level recognized some enabling attitudes that help spreading experimentation in Elisa. These attitudes include being curious and open for improvement and understanding the value of experimentation even in experiments that might feel like failures, and seeing the big picture, i.e. understanding your role in the ecosystem of Elisa, instead of having tunnel vision to only your team or business area.

"Our team is quite skilled at experimentation and we have been given freedom to try different things. Also, many business teams trust us and let us do experiments in peace."

An interviewee from the experimenting level about enablers for experimentation

5.3.3 Successes from experimentation

As for successes of experimentation in Elisa, the interviewees of the experimenting level were glad to see an increased interest in experimentation throughout the company. The need for it is recognized more, and more and more teams are asking for help in doing experiments and are interested to learn about it, and with successful experiments the interest increases even more. Additionally, impactful decisions are made based on findings from experiments. Some teams are very skilled at it and have a good process going on. Also training programs were mentioned, as they seem to be liked and valued throughout the organization.

Experiences of particularly successful experiments were mostly due to the successful practicalities of the experiment building and running according to the experimenting level. This means the experiment being based on proper background research instead of just an idea by somebody, gathering a lot of data from which it is easy to draw conclusions, being able to measure a business impact from the metrics, and the experiment being deployed.

"It is nice when experiments actually get deployed, so something more than just nice-to-know comes from it."

An interviewee of the experimenting level about successes from experimentation

5.3.4 Hindrances in experimentation

As for what is hindering experimentation in Elisa, the interviewees of the experimenting level felt it is largely due to the issues in collaboration. People might not be interested to participate and help if they do not have a financial incentive or they do not understand the value of experimentation. Additionally, the hectic environment of Elisa leaves little time for stakeholders to help with or participate in experiments. The dispersed decision-making slows down experiment building, and some resist experimentation in fear of it messing up existing processes.

As for what is hindering the everyday work of the interviewees of the experimenting level, the list was far longer than the enabling components. The profit orientation of Elisa is one issue, as it hinders experimentation due to the collaborators lack of time and inflexibility to focus on anything else than profits, especially in experimentation that require some manual work. The profit orientation also shifts the focus from learning to finding any profit opportunities, leading to there not being proper background research or proper final analysis and documentation, as many want to move on to the next profit-finding project. Some teams struggle with metrics, as customer experience is harder to measure and turn into monetary value compared to sales metrics.

The focus for profiting also leads to experiments being very fragmented within Elisa, and not pursuing a cohesive and joint goal. Some interviewees have felt pressure to end experiments too fast due to it bothering collaborators and affecting profit goals, harming the knowledge creation aspect of experiments. As for the complexity of Elisa as an organization, some interviewees have struggled with finding the right contacts to help with experiments. Working with a new team might include distrust with the experimentation process, making it difficult for the interviewees of the experimenting level to do their work. Some practical issues were also mentioned, such as having a proper MVP to production process in order to deploy successful experiments, experimenters having more freedom and access to technical tools to increase independence and lessen the need of bothering others, and struggling to find a way to measure customer experience in a reliable and monetary manner.

As for what kind of attitudes that may hinder experimentation in Elisa, the interviewees had encountered mostly fear of change in people they have collaborated with. Some might be scared to mess up working processes of profit metrics with an experiment or be unwilling to try something new. Some might even be scared that their job title would be in jeopardy due to a successful experiment. Even though experimenting is meant to be cost-efficient and fast, some are reluctant to accept that experiments cost even a small amount of time and money. Lastly, the interviewees of the experimenting level identified some

misunderstanding of experimentation, using it as a means to present impressive numbers and profits for the management.

As for experiences of bad experimentation, the interviewees felt most failures in experimentation are due to the experiment being carelessly set up. This would mean not getting enough data, running just a random idea instead of an actual proven and researched issue, having unclear metrics and not being able to validate the cause and effect between the experiment and customer behaviour. Having trouble finding the right persons to help or doing so called human errors were also mentioned, like running an online test incorrectly. However, these were seen as opportunities to learn from your mistakes and be better in the future.

"Measuring customer experience with NPS is problematic because the results don't reflect on the experiment reliably. Customers answer it based on their whole customer experience with Elisa."

An interviewee of the experimenting level about hindrances in experimentation

5.3.5 Evolving experimentation

The interviewees of the experimenting level would like to see a wider implementation of experimentation in Elisa. This includes having people who know how to experiment in more teams, as it is difficult to come as an outsider to a team to teach about experimentation. Also, experimentation should not only focus on incremental changes, but to seek the greatest value for Elisa and the customers. As for creating more of a culture around experimentation than is currently, having organization-wide sharing sessions about experimentation was mentioned.

Most improvement suggestions about the work of the interviewees' teams involved having systematic experimentation processes. This means focusing on quality instead of quantity by increasing the amount of initial research, allocating enough time for proper analysis even on tests that did not bring instant profits, and improving their documentation and knowledge sharing process.

"I would like mindsets to change that the value from experiments doesn't come from quantity but from quality."

An interviewee of the experimenting level about evolving experimentation in Elisa

5.4 Summary

This section summarizes the key similarities and differences in the different level's responses. It is divided into two parts. First, it summarises what the levels feel about the overall culture in Elisa. Second, it summarises the business and experimenting levels views about experimentation in practice in the day-to-day of their teams. The implications of the results and their relevance to the research questions will be further discussed in chapter 6.

5.4.1 Experimentation culture in Elisa

Interviewees from all three levels agreed on what experimentation culture is what its purpose is: gaining a competitive edge by continuous improvement and validation of new ideas. Additionally, all interviewees agreed on experimentation being done in a dispersed manner throughout the organization, with different methods and processes, and that Elisa is on a good path in improving its experimentation practices. However, the interviewees of the business level recognized a lack of common vision for experimentation and wished for a more systematic model and tool pack for experimentation. They also identified along with the interviewees of the experimenting level that experimentation is often used to gain quick wins instead of sustainable and valuable business creation.

As for enablers of experimentation in Elisa, all interviewees agreed on the increased interest in it within the organizations playing a significant role. Also, the resources allocated for it in the form of experimenting teams and training programs show leadership's support for experimentation. The interviewees from the business level and the experimenting level had recognized that sharing success stories and financial gains made due to experimentation increases interest for it within Elisa. The enablers can be seen in action when discussing successes of experimentation within Elisa. The interviewees from the strategic

level noted that teams built from scratch around experimentation are succeeding well and training programs encourage employees to improve their ways of working, the interviewees from the business level had seen great success in increased profits and decreased costs due to experimentation, and the interviewees from the experimenting level had noticed an increasing level of interest for it, as more and more teams reach out to ask for their help to start experimenting.

As for hindrances for experimentation in Elisa, the levels had different insights. The interviewees from the strategic level wished that experimentation was done in a more disciplined and systematic manner, focusing on learning instead of profiting. The interviewees from the business level faced issues with the slow and traditional processes in Elisa, and the core business targets steering experimentation towards profiting. The interviewees from the experimenting level saw hindrances in collaboration, as their stakeholders or colleagues do not have time or incentive to participate in experimentation.

As for how they would like to evolve experimentation in Elisa, all interviewees agreed on wanting to increase the amount of experimenting within the company and develop more systematic ways for it. The interviewees from the strategic and experimenting levels also mentioned increasing the amount of radical experimentation, as most experimentation at the moment is of incremental nature. All interviewees agreed on Elisa being on a good path in spreading its experimentation culture and that such changes take time and repetition. Table 2 presents key similarities and differences of the interviewee levels' experiences.

	Strategic	Business	Experimenting
Enablers	Increased interest throughout Elisa Leadership support Building experimentation teams from scratch	Increased interest throughout Elisa Leadership support Sharing experiences to peers	Increased interest throughout Elisa Leadership support Sharing experiences to peers
Hindrances	Focus on profits instead of learning Lack of discipline and common ways of experimenting	Searching quick profits instead of sustainable value Lack of common vision	Searching quick profits instead of sustainable value Lack of participation from stakeholders and collaborators

Table 2: The interviewee levels' perceptions of enablers and hindrances for experimentation culture in Elisa

5.4.2 Experimentation in practice in Elisa

The interviewees from the business and experimenting level were able to give some more insight about the day-to-day experimentation in Elisa, when discussing how experimentation is done in their respective teams.

In their teams, the interviewees from the business and experimenting level viewed experimentation as a tool for development and for solving customer and business problems. The purpose of experimentation in the interviewees from the business level's teams was aligned with their team goals, like increasing sales or saving costs. Experimentation also reduces the need for guessing. The interviewees from the experimenting level also viewed the purpose of

experimentation to be increasing customer understanding and profit opportunities, testing bold ideas, and having smooth collaboration throughout the experiment.

As for the motivation to conduct experiments, the interviewees from the business and experimenting level felt it is the core of their way of working, not needing any particular incentives for it. However, interviewees from both levels agreed on experimentation providing ease of communication and decision-making and working with talented colleagues being inspiring. The interviewees from the business level mentioned leadership commitment and the increase in profits due to experimentation motivating, while the interviewees from the experimenting team felt the growing interest for it within the company as encouraging.

The interviewees from the business and experimenting levels had varying views of what enables experimentation within their teams. The interviewees from the business level stressed the need for experimenting capabilities and practice, while the interviewees from the experimenting level recognized the need for autonomy and smooth collaboration. As for particularly successful experiments, the interviewees from the business level recalled experiments where the results could easily be turned into monetary value and were aligned with the goals of the core business, while the interviewees from the experimenting level appreciated experiments which had been as correctly done as possible.

The interviewees from both levels highly agreed on what kind of hindrances they face in their day-to-day experimentation. One of them was the strict target goals of the core business leading to lack of discipline, focus in profiting instead of learning, and the lack of time collaborators would be willing to use on experiments. Another hindrance was the slow processes and strict technical systems that slow down experimentation. A third hindrance were the metrics, especially turning increased customer experience into a monetary value. The obstacles could be identified when discussing unsuccessful experiments. Interviewees from both levels recalled experiences where the practicalities of the experiment have failed, such as having unclear targets, not gathering enough

data, technical issues, and so on. Interviewees from both levels agreed that these kinds of mistakes are still an opportunity to learn and improve your skills.

As for ideas to evolve their teams' experimentation work, interviewees from both levels agreed on trying to remove the above-mentioned hindrances by having systematic processes for experimentation. The interviewees from the business level also mentioned getting faster processes for experiments and evolving their own skills in experimentation and what kind of mindset it requires. Table 3 presents key similarities and differences of the interviewee levels' experiences.

	Business	**Experimenting**
Enablers	Experimenting capabilities and practice Being able to turn experiment results into monetary value	Autonomy Smooth collaboration
Hindrances	Lack of discipline due to strict target goals unifitted for experimentation Lack of time for experimentation Inflexible processes Difficult metrics	Lack of discipline due to strict target goals unifitted for experimentation Lack of time for experimentation Inflexible processes Difficult metrics

Table 3: The business and experimenting levels' perceptions of enablers and hindrances for experimentation in their day-to-day work.

6 Conclusions

This study aimed to identify the enablers and hindrances for the maintenance of an experimentation culture in a telecom organization. This was done by an interview research at Elisa Oyj, followed by a comparative analysis. The purpose of these research methods was to compare how well academic literature on these matters corresponds with the practical realities of an organization trying to maintain an experimentation culture and give practical implications for the case organization to enhance their experimentation culture.

This chapter is divided into the three sub-questions: fitting experimentation with traditional development methods, organizational structures for enabling experimentation, and experimentation at different levels of an organization. Lastly, the synthesis aims to summarize the findings to review the enablers and hindrances of maintaining an experimentation culture, answering the main research question of this study. The research questions as originally presented and motivated in chapter 3 are as follows:

1) What enablers and hindrances can be found in maintaining an experimentation culture in a telecom organization?
    a) How can experimentation fit into traditional development?
    b) What organizational structures are necessary for an experimentation culture?
    c) How does experimentation manifest itself in different levels of a telecom organization?

6.1 Experimentation and traditional development

Chapter 2.3 discussed what managerial requirements experimentation and exploratory activities have compared to traditional core business operations. These were the main findings based on Kanter (1989) and O'Reilly and Tushman (2016):

- Committed leadership with faith in experimentation
- Resources that do not rely on short-term return
- Ability to use core business resources without its interference
- Separate processes for experimentation and the core business
- Flexibility to sudden changes
- Metrics focused on scaling instead of profits
- High degree of focus and capability to capture knowledge
- Close teamwork with high stability to ensure knowledge sharing

The empirical research sheds light on how well this corresponds to practice. All levels of interviewees praised leadership commitment to be an enabler for experimentation. In practice, the commitment is perceived in training programs for experimentation, giving autonomy and trust for experimenting teams, allowing failure, and major decisions being made due to experimentation. Kanter (1989) discussed how leadership commitment alleviates high uncertainty, which is a key factor in experimentation.

Additionally, close teamwork was seen as an enabler for experimentation according to the business and experimenting levels, as many of the interviewees felt motivated and inspired by the talent and skills of their closest co-workers. Also, issues with high stability were recognized, as familiarity of the organization and the context it operates in was seen as an enabling factor for experimentation.

Apart from leadership commitment and teamwork, the empirical research showed some difficulties with fitting experimenting with the core business processes in the case organization. Most experimenting efforts in Elisa operate

with the same rules as the core business as in measuring success with the same financial metrics, the hecticness of the core business overshadowing experimentations, cycling experiments through slow and inflexible processes, and a lack of time to capture the knowledge from each experiment and proper documentation. O'Reilly and Tushman (2016) discussed finding success in the core business often steering organizations to overinvest in it and neglecting innovative pursuits. In Elisa, experimentation in practice is mostly developing the core businesses incrementally, instead of truly finding opportunities for innovation.

The fact that interviewees from the business and experimenting levels were struggling to turn long-term phenomena, such as improved customer experience, into monetary value indicates that experimentation in Elisa is expected to produce instant profits instead of being an opportunity to learn. It can be argued that this is the reason why most experimental activity within Elisa is of incremental nature, even though both the strategic level and experimenting level have hopes of experimenting used to create radical innovation.

Interviewees did not mention flexibility to sudden changes at Elisa to impact experimentation in any way. This might be due to the high autonomy teams are given and the incremental nature of most experiments not resulting in any major surprises or changes.

6.2 Organizational structures for experimentation

Chapter 2.4 reviewed organizational structures that enable experimentation. In short, these were the findings from existing research by Goh and Richards (1997), O'Reilly and Tushmore (2016), Thomke (2020), and Tidd, Bessant and Pavitt (2001):

- Continuous training programs
- Strict onboarding to the experimentation culture
- A clear vision and strategy for experimentation

- Dedicated resources for experimentation
- High amounts of experimentation to increase the chance of success
- Incentive models that do not rely on traditional financial metrics
- Autonomy and minimal dependency for experimenting teams

The interviewees gave high praise to the training programs in Elisa being important for the maintenance of experimentation culture by spreading awareness, indicating leadership support, and strengthening the organization's experimentation capabilities. However, there was no mention of an onboarding process to experimentation. As training programs are voluntary, it is up to the individual's willingness to participate in order to learn in-depth about experimentation. A mandatory onboarding program about experimentation, which is currently lacking in Elisa, might speed the awareness about experimentation throughout the company and spark more interest in joining the more extensive training programs.

The interviewees also agree on resourcing enabling experimentation. This went hand in hand with being able to do high amounts of experimentation, reducing fear of failure and increasing chances of success, just as Goh and Richards (1997) argued in chapter 2.4. Furthermore, more experimentation due to allocated resources for it evolves the experimentation culture, as nearly all interviewees understand that strengthening the experimentation culture in Elisa requires lots of repetition and practice in conducting experiments.

Interestingly enough, the interviewees in the business and experimenting levels did not see the lack of experimentation specific incentive models as a hindrance. The interviewees were motivated to experiment by other factors such as ease of communication and decision-making and reaching team targets. This applies with Ries's (2011) statement of including non-financial incentives to experimentation. This was particularly the case in teams which were built around experimentation as it was perceived as their standard way of doing things. Additionally, according to the interviewees' experiences, sharing success stories of experimentation increases others' interest to participate in it. This would

suggest that incentive models are of high importance in the creation of an experimentation culture, but its meaning diminishes as it becomes the established way of working.

All interviewee levels praised Elisa for giving autonomy where it is needed. However, the interviewees of the strategic level saw experimentation within the organization to be very dispersed and varying, and sometimes without discipline. The interviewees of the business level, on the other hand, struggled with a lack of vision for experimentation within Elisa and not having the proper tools for it. In chapter 2.4 Goh and Richards (1997) and Ries (2011) argued that experimenting teams should have autonomy in order to act fast and keep focus on the overall vision of the organization, implying that autonomy requires a strong vision. Without said strong vision, autonomy has in the case of Elisa Oyj led to experimentation losing its discipline and becoming dispersed.

Additionally, a clear hindrance the interviewees of business and experimenting levels had noticed within Elisa is the lack of time of stakeholders and having to fit experimentation on top of their other daily work. In a sense, experimentation is viewed as an extra thing to do. O'Reilly and Tushmore (2016) argued that a clear vision for exploratory activities will lead to a shared goal among the employees of an organization, lessening the competition of resources and seeing experimentation as an extra distraction. Again, this could also be alleviated with a mandatory onboarding for experimentation to make sure everyone understands the purpose and importance of doing experiments and encouraging everyone to take part in it.

A clear enabler for experimentation culture as according to the interviewees of the business and experimenting levels was opportunities for knowledge sharing, which was not mentioned in existing literature. Many interviewees stated that other teams and colleagues become interested in participating in experimentation when they hear success stories about it. On the other hand, upper management understands and encourages experimentation. This may be due to the bottom-up reporting duties within a hierarchical organization like

Elisa: teams often report upwards, leading to upper management being exposed to results of experimentation, and understanding the potential of it. This phenomenon could be applied horizontally as well, allowing teams to share experimentation to other teams and colleagues, and thus creating more interest in it. A member of the experimenting level believed formal sharing opportunities would create a stronger sense of experimentation culture within the organization.

6.3 Experimentation at different levels of a large organization

Chapter 5 reviewed the results of the interview research, highlighting differences and similarities in how the interviewees of the strategic, business, and experimenting levels of Elisa perceive experimentation. In short, the interviewees of the strategic level saw experimentation as a way to gain competitive edge by finding new business opportunities the fastest, the interviewees of the business level saw it as a tool for development and reaching their team targets, and the interviewees of the experimenting level saw it as a way to solve business and customer issues. Interestingly, all interviewees had noted the same enablers and hindrances for experimentation in Elisa.

As the main hindrances for experimentation, every interviewee level mentioned a lack of discipline and issues with fitting it in with the demands of the core business. As for enablers, all interviewee levels agreed on knowledge sharing and leadership commitment being Elisa's strengths. How each level experienced these hindrances and enablers are described in more detail in the previous sections. The fact that each level struggles with different symptoms of the same core issues means there is potential to enhance experimentation of each level and unite the vision of experimentation, from top to bottom. The next chapter offers some ways for Elisa and similar organizations to enhance their experimentation culture.

7 Discussion

This chapter concludes this study by first giving theoretical implications, reviewing how this study contributes to existing research. Then, practical implications for the case organization Elisa, and other similar organizations aiming to create a stronger experimentation culture are discussed. Lastly, limitations of this research and possibilities for further research are presented.

7.1 Theoretical implications

As mentioned in chapter 1.1 there is not much academic research about specifically experimentation. This study contributes to that field combining findings from existing research and practitioner literature, offering a comprehensive review about experimentation as an innovation practice and what makes it unique from other innovation methods.

As for a key concept for this study, maintaining an experimentation culture 10 years after its initial creation in the case organization instead of creating one from scratch, this study offers some theoretical implications. As for managerial or structural requirements, the findings of this study correspond well with existing literature about the creation of an experimentation culture. However, some differences were found such as the role of incentive models and the practicalities of experimentation. The interviewees did not mention needing any specific incentive models, because experimentation is perceived as the standard way of doing things at the case organization. Instead, non-financial incentives, such as inspiring colleagues and sense of impact were seen as motivating.

Additionally, while the case organization Elisa did check of many of the managerial and structural requirements, most issues stem from not having

technical capabilities, such as an easy MVP to production process, in place. Currently, existing research focuses on creating a culture for experimentation, but this study implies that technical capabilities are just as crucial as the cultural ones in order alleviate many problems in the day-to-day of employees trying to experiment in the core business's inflexible processes.

Lastly, a key factor that the interviewees mentioned affects the experimentation culture within the case organization was the role of personal relationships. Trust in particular was mentioned to enable autonomy and to increase the speed of experimentation, while the lack of it would discourage individuals and teams to partake in experimentation. Also, building trust between teams was mentioned to be a necessary step when experimenting in a new area of the case organization. This implies that even though there are enabling structures and managerial factors in place for experimentation, facilitating trust between individuals and teams is a key aspect to consider while strengthening your experimentation culture.

7.2 Practical implications

This section discusses some practical suggestions for organizations that aim to maintain and strengthen their experimentation culture based on the findings of this study. Even though this study's context is the case organization Elisa Oyj and these implications are targeted towards it, they can be applied to other similar organizations as well.

Overall, the findings of this study confirm that cultural change is slow, especially in an organization with a long history such as the case organization. Perfected processes and emphasis on optimization leave little flexibility for the speed and focus experimentation requires. Building an experimentation culture through factors unrelated to the core business, such as training programs and values, is a good start in building the culture but do not combat the issues employees face in their day-to-day work in the form of legacy systems and bureaucracy.

Significant efforts should be focused on building the technical capabilities for experimentation, such as providing shortcuts for experiments that eliminate the need to use the same inflexible processes that traditional development requires. Additionally, while it is slow to build high experimentation capabilities throughout a large organization, it is important to spread awareness of it. Making sure everyone understands why experimentation is done and the overall purpose of it would encourage everyone to join in the effort, defeating the lack of interest and time from important stakeholders and collaborators that the interviewees of this study faced. In practice, this can be achieved through onboarding processes.

Apart from these general guidelines for organizations trying to strengthen their experimentation culture, here are some action points specifically for the case organization Elisa Oyj:

Strengthen experimentation culture by horizontal knowledge sharing. Not only is effective knowledge sharing a managerial enabler for explorative endeavours, according to the empirical study it is one of the key ways to get people interested in doing experiments, especially when sharing successes from experimentation. However, in organizations like the case organization knowledge sharing is often done vertically due to bottom-up reporting duties.

Sharing knowledge and experimentation experiences horizontally would enable teams to share best practices, get peers interested and involved, and ultimately strengthen the experimentation culture within the organization. Committing resources for opportunities to share experimentation knowledge would also strengthen the signal of leadership commitment to experimentation, which was seen as a key enabler for experimentation in Elisa.

Empower autonomy with a clear vision. Autonomy was experienced as a key enabler for experimentation in Elisa, but interviewees lacked vision and systematic ways for experimentation within the organization. Teams are left alone to struggle with finding the best ways to measure intangible metrics like customer experience, steering them to apply familiar traditional business

standards to experimental activities. As long as teams are not fully capable to overcome these challenges by themselves, they might feel altogether discouraged to experiment. Training programs alleviate this issue, but those are often voluntary to participate in and are separated from the day-to-day of employees.

Providing guidance and tools not only lowers the threshold to start experimenting and empowers autonomy, but unified practices can create a stronger common experimentation culture instead of a dispersed one. This, in turn, will lessen the image of experimentation being a distraction and making it more of a common goal for all employees. More research should be conducted in Elisa to determine exactly what kind of tools experimenting teams feel the need for.

Understand the cumulative effects of resourcing. Committing resources to a new activity usually brings to mind allocating time and money for it. However, resourcing is a strong signal from the leadership on what the organization values. This had not gone unnoticed or unvalued by the interviewees of Elisa.

Not only does resourcing signal appreciation, the chain reaction of it directly contributes to the values of experimentation. Resourcing allows for an increased amount of experiments, lowering the threshold for failure and increasing the chance of successful experiments. This will encourage non-experimenting teams to try it out without a fear of immediate failure. Additionally, as experimentation is a very practical activity, more repetitions due to more resourcing will enable each team to find the best way for them to do it, fast.

Acknowledge that change takes time. As any cultural change, strengthening an experimentation culture throughout an organization takes time. Every interviewee in Elisa agreed and felt optimistic that they are on a good path of developing their experimentation capabilities, even though the creation of the culture originally started in all the way back in 2009.

7.3 Limitations and further research

This study has limitations which should be addressed. This study was conducted in a Finnish telecom organization, and the results may not apply to other countries, industries, or organizations. This also limits the replicability of this study and while the results might show implications for other organizations struggling with the same issues, the results are not fully generalizable. Related to this, as mentioned in chapter 4.2.1, the interview participants did not represent a sample of Elisa employees but instead aimed to gather different experiences from different levels of Elisa. Therefore, even though the interview research was made as extensive as possible in the available time frame, the results could be further validated within the organization with more participants.

This study contributes to the academic field of experimentation by examining how maintenance of an experimentation culture differs from creating one from scratch. This study also provides practical implications for organizations to strengthen their experimentation culture throughout all levels of the organization. However, there are still lots of opportunities for further research.

It would be interesting to do similar research across many experimenting organizations to examine what are the most common challenges in maintaining an experimentation culture. This could also provide some insight into how generalizable the results of this study are. Furthermore, lots of existing research focuses on managerial and structural aspects of creating an experimentation culture. Interestingly enough, many interviewees in this research mentioned personality traits, attitudes, and relationships as factors that affect experimentation culture. More research could be dedicated to this to examine what sort of individuals and relationships strengthen experimentation culture.

As for strengthening the theoretical implications discussed in chapter 7.1, more research could be dedicated for the technical capabilities an experimentation culture requires.

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Appendices

Appendix 1: Questions for the strategic level

- Mitä teet Elisalla?
- Miten liityt Elisan kokeilukulttuurin?

MITÄ KOKEILUKULTTUURI TARKOITTAA SINULLE?

- Sinun mielestäsi, miksi meillä on niin vahva fokus kokeiluihin?
- Mitä kokeiluilla tavoitellaan Elisalla?

MITEN KOKEILUKULTTUURI TOTEUTETAAN ELISALLA MIELESTÄSI

- Missä muodoissa tunnistat, että Elisalla tehdään kokeiluja?
- Millä tavoin Elisalla tuetaan näitä muotoja?

MITÄ MAHDOLLISTAJIA JA ESTEITÄ OLET KOHDANNUT ELISAN KOKEILUKULTTUURISSA?

- Mitä onnistumisia näet Elisalla liittyen kokeiluun?
- Mitä haasteita näet Elisalla liittyen kokeiluun?
- Miten haluaisit kehittää Elisan kokeilutoimintaa?

Appendix 2: Questions for the business and experimenting level

- Mitä teet Elisalla?
- Miten liityt Elisan kokeilukulttuurin?

MITÄ KOKEILUKULTTUURI TARKOITTAA SINULLE?

- Mitä kokeilukulttuuri Elisalla tarkoittaa mielestäsi?
    - Toteutuuko tämä käytännössä?
- Mitä teidän tiiminne tavoittelee kokeiluilla?

MITEN KOKEILUKULTTUURI TOTEUTETAAN ELISALLA MIELESTÄSI?

- Mitä onnistumisia näet Elisalla liittyen kokeiluun?
- Mitä haasteita näet Elisalla liittyen kokeiluun?

MITÄ MAHDOLLISTAJIA JA ESTEITÄ OLET ITSE KOHDANNUT ELISAN KOKEILUKULTTUURISSA?

- Mikä motivoi sinua tekemään kokeiluja?
- Koetko mitään esteitä tekemään kokeiluja?
- Palauta mieleesi erityisen onnistunut kokeilu. Mikä teki siitä onnistuneen?
- Palauta mieleesi erityisen epäonnistunut kokeilu. Mikä teki siitä epäonnistuneen?
- Onko sinulla mitään tapoja, joilla haluaisit kehittää kokeiluja sinun alueellasi?

Appendix 3: Analysis Codes

Code Names	Number of quotations
Experimentation culture	32
Purpose of experimentation – Elisa	30
Purpose of experimentation – teams	34
Experimentation in Elisa	39
Hindering experimentation	2
Attitudes	21
Structures	54
Enabling experimentation in Elisa	44
Attitudes	16
Structures	31
Evolving experimentation in Elisa	39
Experimentation in teams	10
Enabling experimentation in teams	15
Hindering experimentation in teams	55
Incentive to experiment	32
Successful experiment experience	24
Unsuccessful experiment experience	27
Traditional development and experimentation	16